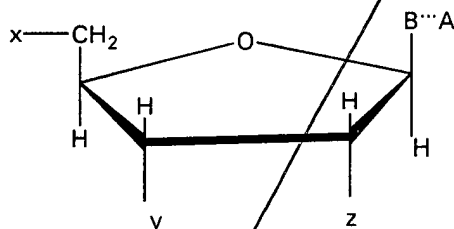


thereby indicating the presence of said labeled oligo- or polynucleotide, said chemically modified nucleotides being modified non-disruptively or disruptively on at least one of the sugar, phosphate or base moieties thereof; and

(b) an oligo- or polynucleotide;

(B) incorporating said one or more chemically modified nucleotides into said oligo- or polynucleotide, thereby preparing a labeled oligo- or polynucleotide of interest, said labeled oligo- or polynucleotide of interest comprising one or more chemically modified nucleotides selected from the group consisting of:

(i)

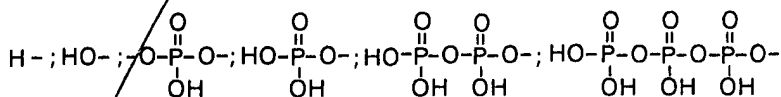


wherein B represents a purine, a 7-deazapurine or a pyrimidine moiety covalently bonded to the C1'-position of the sugar moiety, provided that whenever B is a purine or 7-deazapurine, the sugar moiety is attached at the N9-position of the purine or 7-deazapurine, and whenever B is a pyrimidine, the sugar moiety is attached at the N1-position of the pyrimidine;

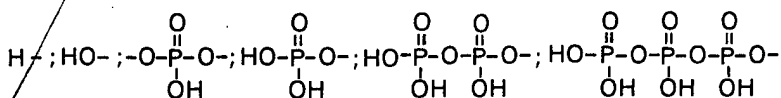
wherein A comprises at least three carbon atoms and represents at least one component of a signalling moiety capable of producing directly or indirectly a detectable signal or being self-signaling or self-indicating or self-detecting; and

wherein B and A are covalently attached directly or through a linkage group, and

wherein x comprises a member selected from the group consisting of:

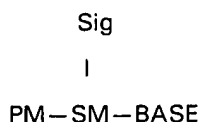


wherein y comprises a member selected from the group consisting of:



wherein z comprises a member selected from the group consisting of
H- and HO- ;

(ii)



wherein

PM is a phosphate moiety,

SM is a sugar moiety,

BASE is a pyrimidine, purine or 7-deazapurine, and

Sig is a detectable moiety, and

wherein said PM is attached to SM at a position independently
selected from the 2', 3', and 5' positions of SM when said nucleotide is a
ribonucleotide, and at a position independently selected from the 3' and 5'
positions when said nucleotide is a deoxyribonucleotide, said BASE is
attached to the 1' position of SM from the N¹ position when BASE is a
pyrimidine or the N⁹ position when BASE is a purine or 7-deazapurine, and
Sig is covalently attached to SM directly or through a linkage group; and

(iii)



wherein

PM is a phosphate moiety,

SM is a sugar moiety,

BASE is a pyrimidine, purine or 7-deazapurine, and

Sig is detectable moiety; and

wherein PM is attached to the 3' or the 5' position of SM when said
nucleotide is a deoxyribonucleotide and at the 2', 3' or 5' position when
said nucleotide is a ribonucleotide, BASE is attached to the 1' position of
SM from the N¹ position when BASE is a pyrimidine or the N⁹ position when
BASE is purine, and Sig is covalently attached to PM directly or through a
linkage group; [and

(b) said oligo- or polynucleotide of interest;]

X1
Concluded
Sub J4
(C) transferring said labeled oligo- or polynucleotide of interest to a sequencing gel;

(D) separating said labeled oligo- or polynucleotide of interest from other nucleic acids not of interest; and

(E) detecting directly or indirectly the presence of said labeled oligo- or polynucleotide.

* * * * *